ECOBLOC SMART ATTENUATION

SEE SPEC SHEET FOR SUITABLE COVER DEPTHS

MIN & MAX CL VARIES PROJECT SPECIFIC

Vent pipe taken to a suitable location above ground. (Pipe can be directed vertically or angled away from the tank to a suitable location).

CATCH PIT MANHOLE

IN FLOW

VARIES (PROJECT SPECIFIC)

INLET PIPE

330

800

ECOBLOC SMART
ECOBLOC SMART BASEPLATE

ECOBLOCS WRAPPED IN IMPERMEABLE MEMBRANE AND NON WOVEN GEOTEXTILE

ADAPTOR PLATE

FLOW CONTROL MANHOLE

OUTFLOW

OUTLET PIPE

FLOW CONTROL DEVICE

VARIES (PROJECT SPECIFIC)

An adaptor plate is required for connections over 225mm diameter. Minimum 2 layers of Ecobloc for connection an adaptor plate. Maximum connections 600mm outside diameter.

Geomembrane welded to adaptor plate by an experienced operator that holds an appropriate National Qualification or other qualification for membrane installation.

SECTION A-A
1:60

VENT DETAIL

VENT COWL

GRATE

110mm UNDERGROUND PIPE

CONCRETE VENT BOX

1:25

NB.   The attenuation tank must be vented to a suitable location above ground and it is recommended to have one Ø100mm vent pipe for every 7,500m² of impermeable catchment area. For recommendation on venting size or location on the tank, please contact GRAF Australia.
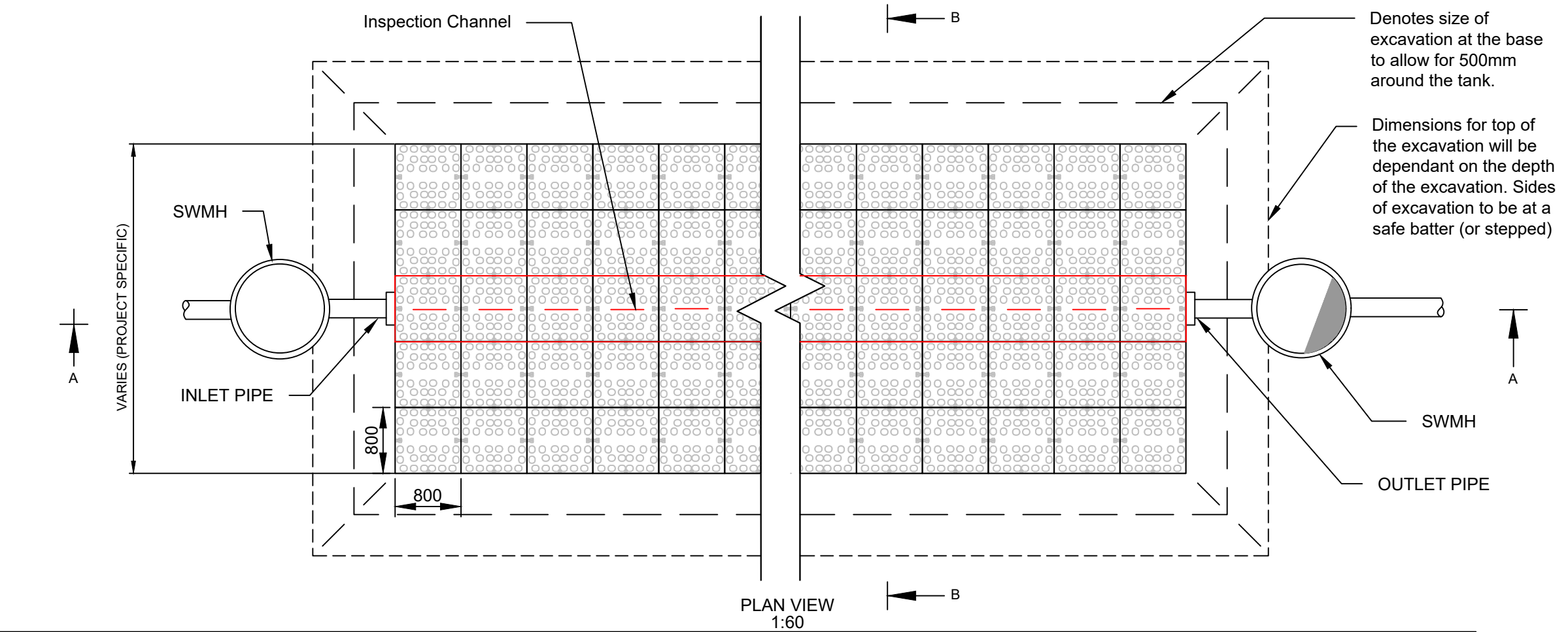
DO NOT SCALE - IF IN DOUBT ASK

Notice: This drawing is issued only as a guideline and is an estimate of the materials required to construct the drainage system, it should not be used for construction purposes.

Graf Australia Pty Ltd makes no warranty or guarantee in relation to the suitability of any of the layout details shown on this drawing in relation to a particular scheme.

NOTES:-

1. All dimensions in mm, unless otherwise stated.
2. All dimensions are nominal and may vary within manufacturing tolerances.
3. All site temporary enabling works by others.
4. Graf products to be installed in strict accordance with Graf recommendations.
5. This drawing is intended for guidance only. Confirmation of the suitability for a particular project should be sought from the consulting engineers prior to final design or commencement of any construction works.
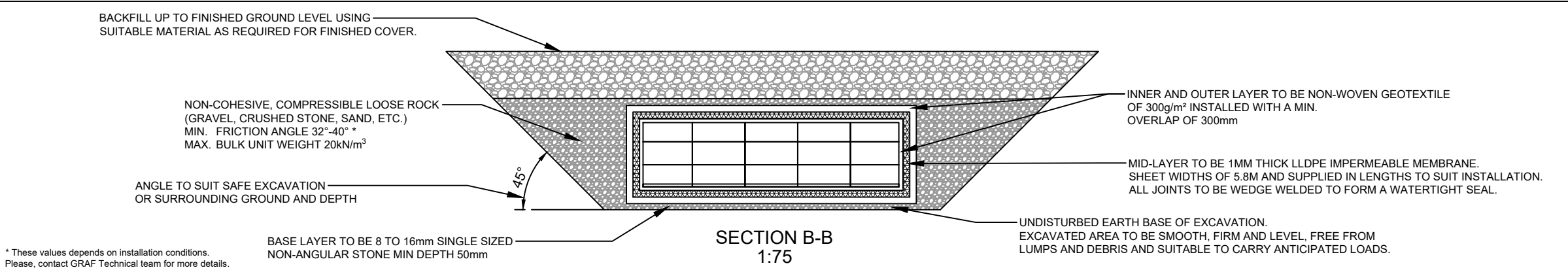
ECOBLOC SMART
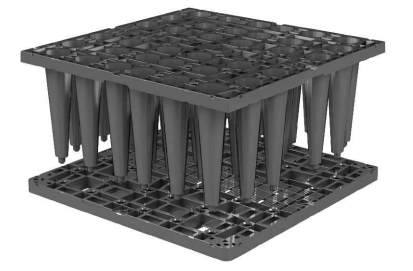
	Ecobloc	Baseplate
Dimensions (mm)	800 x 800 x 330	800 x 800 x 40
Gross Volume (m3)	0.211m³	0.025m³
Net Volume (m3)	0.202m³	0.024m³
Material	Polypropylene	Polypropylene
Weight	9.9kg	4.2kg
Void Ratio	>96% depending on number of layers	
Inspectable	Yes	
Comply to load requirements of AS5100		

PLAN VIEW

Inspection Channel

B

Denotes size of excavation at the base to allow for 500mm around the tank.

Dimensions for top of the excavation will be dependant on the depth of the excavation. Sides of excavation to be at a safe batter (or stepped)

SWMH

VARIES (PROJECT SPECIFIC)

INLET PIPE

A

A

800

800

SWMH

OUTLET PIPE

B

PLAN VIEW
1:60

NOTE: EXCAVATION TO EXCEED TANK SIZE BY 500MM ON ALL SIDES TO ALLOW FOR ACCESS. IF THERE IS ANY GROUNDWATER CONDITIONS TO BE CONSIDERED PLEASE CONTACT GRAF TECHNICAL TEAM.

SECTION B-B

BACKFILL UP TO FINISHED GROUND LEVEL USING SUITABLE MATERIAL AS REQUIRED FOR FINISHED COVER.

NON-COHESIVE, COMPRESSIBLE LOOSE ROCK (GRAVEL, CRUSHED STONE, SAND, ETC.) MIN.   FRICTION ANGLE 32°-40° * MAX.   BULK UNIT WEIGHT 20kN/m³

ANGLE TO SUIT SAFE EXCAVATION OR SURROUNDING GROUND AND DEPTH

45°

BASE LAYER TO BE 8 TO 16mm SINGLE SIZED NON-ANGULAR STONE MIN DEPTH 50mm

INNER AND OUTER LAYER TO BE NON-WOVEN GEOTEXTILE OF 300g/m² INSTALLED WITH A MIN. OVERLAP OF 300mm

MID-LAYER TO BE 1MM THICK LLDPE IMPERMEABLE MEMBRANE. SHEET WIDTHS OF 5.8M AND SUPPLIED IN LENGTHS TO SUIT INSTALLATION. ALL JOINTS TO BE WEDGE WELDED TO FORM A WATERTIGHT SEAL.

UNDISTURBED EARTH BASE OF EXCAVATION. EXCAVATED AREA TO BE SMOOTH, FIRM AND LEVEL, FREE FROM LUMPS AND DEBRIS AND SUITABLE TO CARRY ANTICIPATED LOADS.

SECTION B-B
1:75

* These values depends on installation conditions. Please, contact GRAF Technical team for more details.

2	LATEST REVISION	AA	04.01.2023
1	LATEST REVISION	MV	14.09.2022
REV.	DESCRIPTION	BY	DATE

GRAF. GRAF Australia Pty Ltd

GRAF Australia Pty Ltd, 43b Sparks Road (rear building), Henderson 6166 WA

T: +61 1300 131 971   F: +61 8 6499 2688
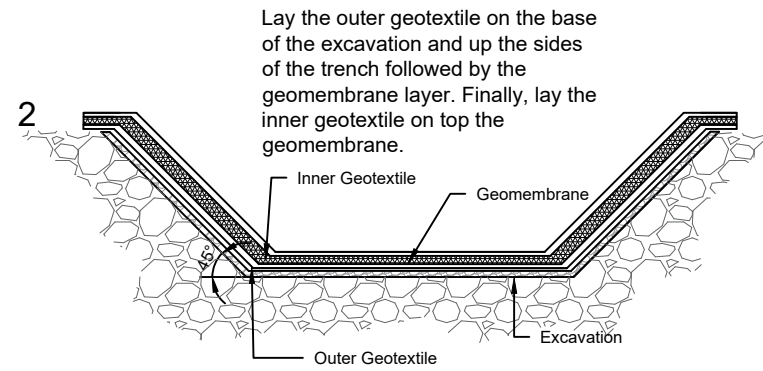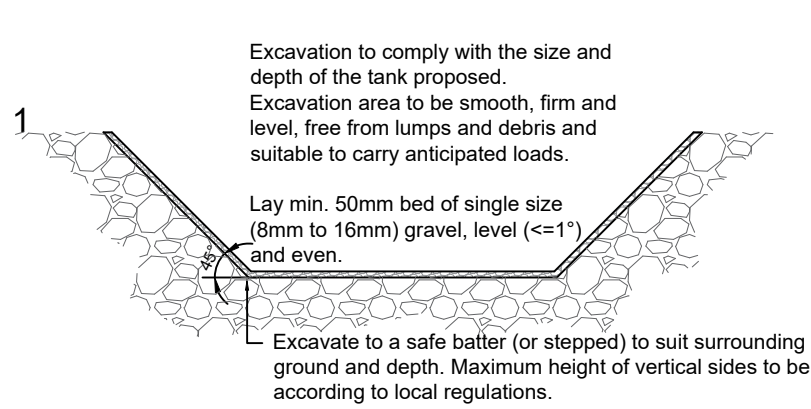E: info@grafaustralia.com.au   www.grafaustralia.com.au

| DRAWN : | AA | DATE : | 04.01.2023 |
| CHECKED : | MV | SCALE : | VARIOUS@A3 |

PROJECT

GRAF STANDARD DETAILS

DESCRIPTION

ATTENUATION TANK using GRAF ECOBLOC SMART

DRAWING No.

DWG-358

REV. 2 (Pg.1)

1 Excavation to comply with the size and depth of the tank proposed. Excavation area to be smooth, firm and level, free from lumps and debris and suitable to carry anticipated loads.

Lay min. 50mm bed of single size (8mm to 16mm) gravel, level (<=1°) and even.

Excavate to a safe batter (or stepped) to suit surrounding ground and depth. Maximum height of vertical sides to be according to local regulations.

2 Lay the outer geotextile on the base of the excavation and up the sides of the trench followed by the geomembrane layer. Finally, lay the inner geotextile on top the geomembrane.

Inner Geotextile
Geomembrane
Outer Geotextile
Excavation

Geomembrane:
1mm Thick LLDPE Geomembrane

Geotextile:
300g/m² Non-woven

Geomembranes and Geotextiles with characteristics less than those specified are unlikely to be suitable and are therefore not recommended for use with Graf Australia systems for this application

3a 500
ECOBLOCS
BASEPLATES
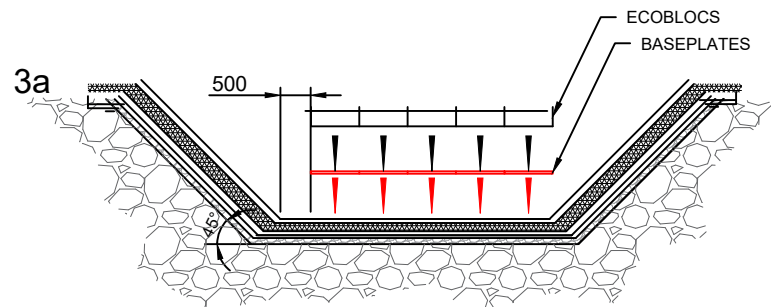
Place the Baseplates on the inner geotextile layer followed by the first layer of Ecoblocs securing them with connectors.

3b 500
ECOBLOCS
BASEPLATES
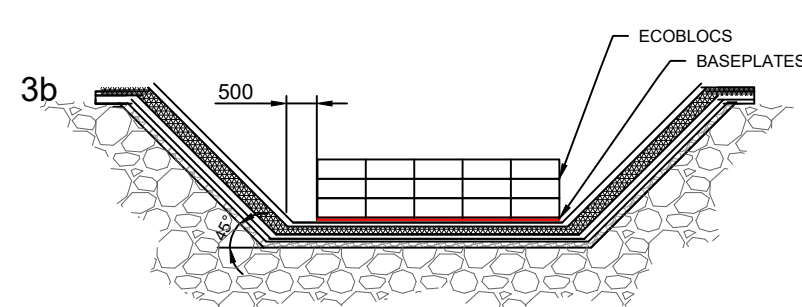
After all layers of Ecoblocs are placed and secure, install the EndPlates. Endplates are clipped to the tank where it is required.
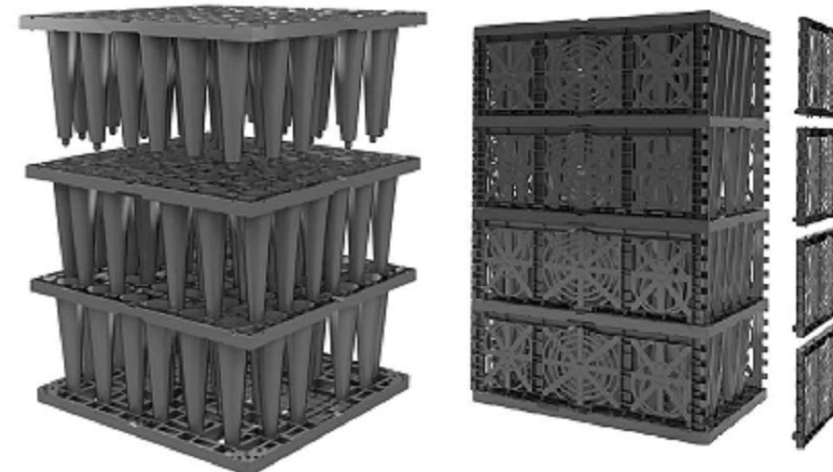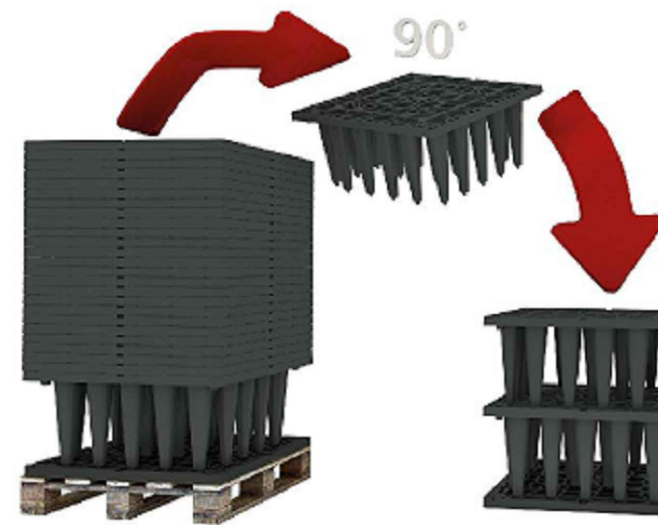
Assemble EcoBloc Flex and Baseplate as shown below.

ECOBLOC SMART

BASEPLATE

ENDPLATE
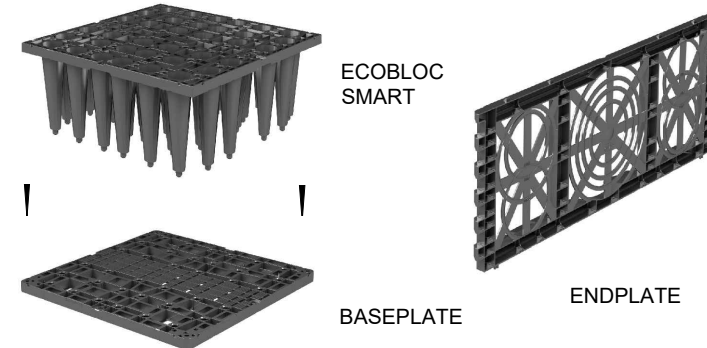
Place the one layer of Ecoblocs on top of the previously placed layer of Ecoblocs ensuring the connector clips are clipped locking the Ecoblocs together.
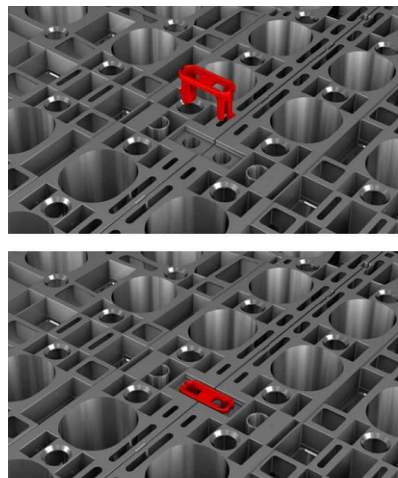
Connector clips are Red for illustration purposes only and are Grey in colour

90°

GEOMEMBRANE
INSIDE GEOTEXTILE

Finally, wrap the blocs with the inner geotextile followed by the geomembrane ensuring it is heat welded then wrap with the outer geotextile to protect the geomembrane. Geomembrane must be joined by an experienced operator that holds an appropriate National Qualification or other qualification for membrane installation.

OUTSIDE GEOTEXTILE

4
Geomembrane
Single sized non-angular stone around sides of tank Refer to Section B-B
Inner Geotextile
Excavation
Outer Geotextile

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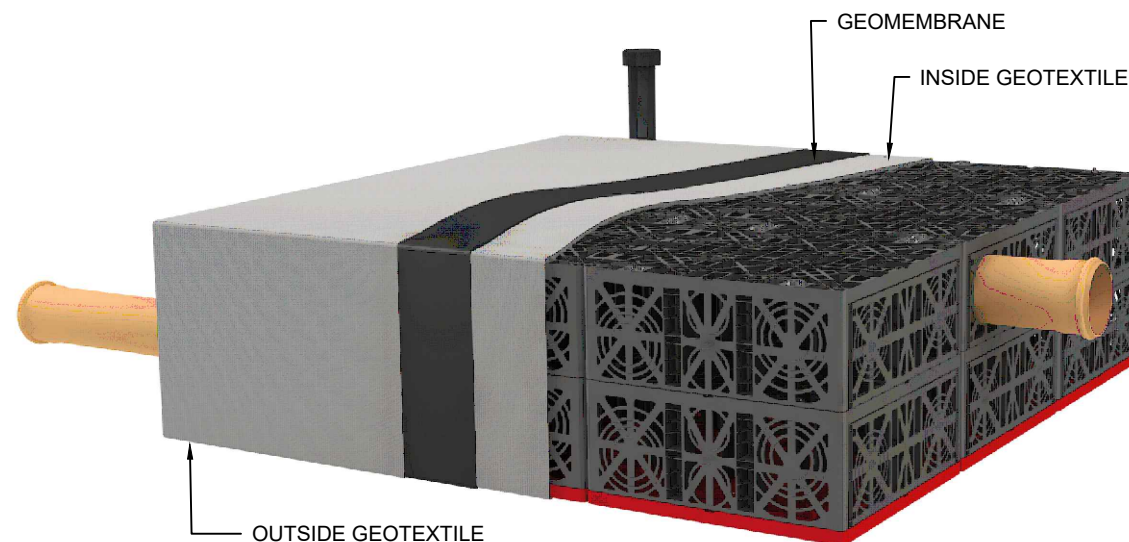
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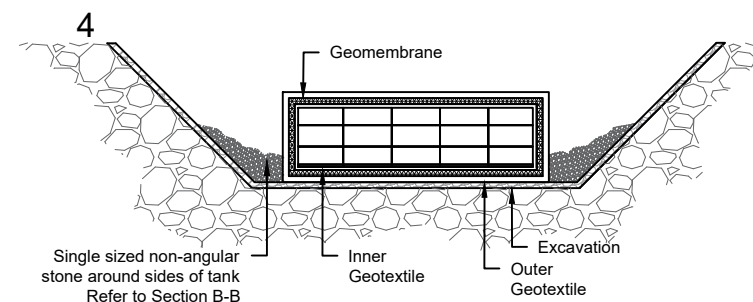
INSTALLATION METHOD:

1. a) Excavate the trench with a safe batter (or stepped) ensuring the footprint allows for sufficient space between tank and the sides (minimum 500mm around all sides of the tank).
b) Mark out the position of the tank including inlets and outlets.
c) Lay min. 50mm of single sized non angular stone (8 to16mm) as a base for the tank. This can be laid to a maximum fall of 1°.

2. a) Lay the outer geotextile over the base of the excavation, overlapping any joins by a minimum of 300mm.
b) Lay the geomembrane on top of the geotextile over the base and up the sides of the trench.
c) Geomembrane must be joined by thermal fusion heated wedge welding by an experienced operator that holds an appropriate National Qualification or other qualification for membrane installation. It is recommended that the Dual Seam method is used as this generates an unwelded channel which can be pressured with air to check the integrity of the weld.
d) Lay the geotextile over the geomembrane before starting to build the tank.
e) The geomembrane and geotextile used must meet the specification stated on the drawing.

3. a) Place EcoBlocs Smart Baseplates onto the inner geotextile. Baseplates do not require clipping.
b) Place EcoBlocs Smart on the baseplates according to inspection orientation, position leg ends into corresponding holes in the Baseplate. The bloc will only fit in the correct orientation. Push down firmly to ensure the bloc is located correctly, clipping each adjacent bloc using the connectors the first layer is completed.
c) To install the next layer of blocs remove from the stack and turn 90° and position directly above the bloc below. Push down firmly to ensure the bloc is located correctly.
d) Continue until all EcoBlocs Smart have been installed, ensuring clips are used to secure each bloc.
e) Fit Endplates to the sides of each bloc by positioning the bottom in place then pushing firmly on the top section to locate into place.

4. a) Fix adaptor plates to the sides of the blocs in the required position for the inlet and outlet pipes if required.
b) Cut a hole in the geomembrane and geotextile for inlet and outlet connections.
c) Pull geomembrane up around the sides and fully wrap the blocs, securing the top in place by heated wedge welding to the side panels.
d) Cover the top and sides with outer geotextile to protect the geomembrane.
e) Install vent pipe connection into the top of the tank at a suitable location.
f) Backfill around the tank in 300mm layers increments using non-cohesive, compressible loose rock (gravel, crushed rock, sand, etc).
g) Connect inlet/outlet pipes and weld/glue them to have a watertight connection.

N.B. Installation method may vary depending on depth of the tank and is project specific. For more information or technical questions please contact our Technical Department at Graf Australia.

REV.	DESCRIPTION	BY	DATE
2	LATEST REVISION	AA	04.01.2023
1	LATEST REVISION	MV	14.09.2022

DRAWN :	AA	DATE :	04.01.2023
CHECKED :	MV	SCALE :	VARIOUS@A3

PROJECT

GRAF STANDARD DETAILS

DESCRIPTION

ATTENUATION TANK using GRAF ECOBLOC SMART

DRAWING No.   **DWG-358**   REV. **2** (Pg.2)